

**REMARKS**

Upon entry of this paper, claims 1-29, 81, and 82 have been amended, no claims have been canceled, and no claims have been added as new claims. Thus, claims 1-82 are presently pending in this application, with claims 30-80 having been withdrawn previously. No new matter has been added.

**Claim Objections***Claims 81-82*

Claims 81-82 are objected to because of the following informalities: Full written out phrase for "MAC" and "OAMP" needs to be provided.

Applicant provides herewith an amendment to the claims, including the full written out phrases for MAC and OAMP. As such, Applicant respectfully requests reconsideration and withdrawal of this rejection.

**Claim Rejections – 35 USC § 112***Claims 1-28*

Claims 1-28 were rejected as allegedly being directed to a single means claim. Prior and subsequent to the present amendment, claim 1 provided a MAC hardware device, comprising a MAC OAMP Control sublayer and a plurality of MAC sublayers for carrying out MAC operations. The claim therefore included at least two claim elements (#1 the MAC OAMP Control sublayer, #2 the plurality of MAC sublayers for carrying out MAC operations). As such, Applicant respectfully requests reconsideration and withdrawal of this rejection.

Claims 24, 81-82 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention due to lack of antecedent basis. Both claims have been amended herein to correct this informality. As such, Applicant respectfully requests reconsideration and withdrawal of this rejection.

**Claim Rejections – 35 USC § 103***Claims 1-9, 11-22, 25-28, 81-82*

Claims 1-4, 7-9, 11, 18, 20-22, 25-28, 81, 82 were rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al. "OAM&P for EFM" in view of Dreyer et al (US 6,098,103). Independent claims 1, 81, and 82 have been amended to further clarify that which Applicant believes to be his invention. In addition, Applicant provides the following remarks in favor of patentability of these claims.

Muir et al. "OAM&P for EFM" (May 21<sup>st</sup>-23<sup>rd</sup>, 2001) is a presentation of "OAM&P for Ethernet in the First Mile" possibilities presented in the early stages of the IEEE 802.3 EFM Study Group meetings. This body of work was later standardized in the IEEE 802.3ah Standards, which was then incorporated into the IEEE Std. 802.3-2005. Muir et al. and the IEEE 802.3 standards describe a method to provide OAM&P for Ethernet **Subscriber Access Network** (SAN) also referred to as "Ethernet in the First Mile" (EFM) (IEEE Std. 802.3-2005, Section One, Page iv, second last paragraph, IEEE Std. 802.3-2005, Section One, Page 30, Subsection 1.4.235, and IEEE Std. 802.3-2005, Section Five, Page 1, Subsection 56.1). The above documentation has already been acknowledged as prior art in the present application (see Specification, page 4, 2<sup>nd</sup> & 5<sup>th</sup> paragraphs).

Contrarily, the present invention describes a method to support OAMP functionality on an Ethernet network (see Specification, page 11, last paragraph, page 12, 3<sup>rd</sup> paragraph, and page 16, 4<sup>th</sup> paragraph). The present invention describes a device and method to support OAMP functionality on Ethernet MAC hardware device for Wave Layer, Physical Layer, Section Layer, Line layer, and Path layer (see Fig. 3, specification page 16, 5<sup>th</sup> paragraph through page 18, last paragraph, page 19, last paragraph, page 22, 2<sup>nd</sup> paragraph, and Page 39, last paragraph).

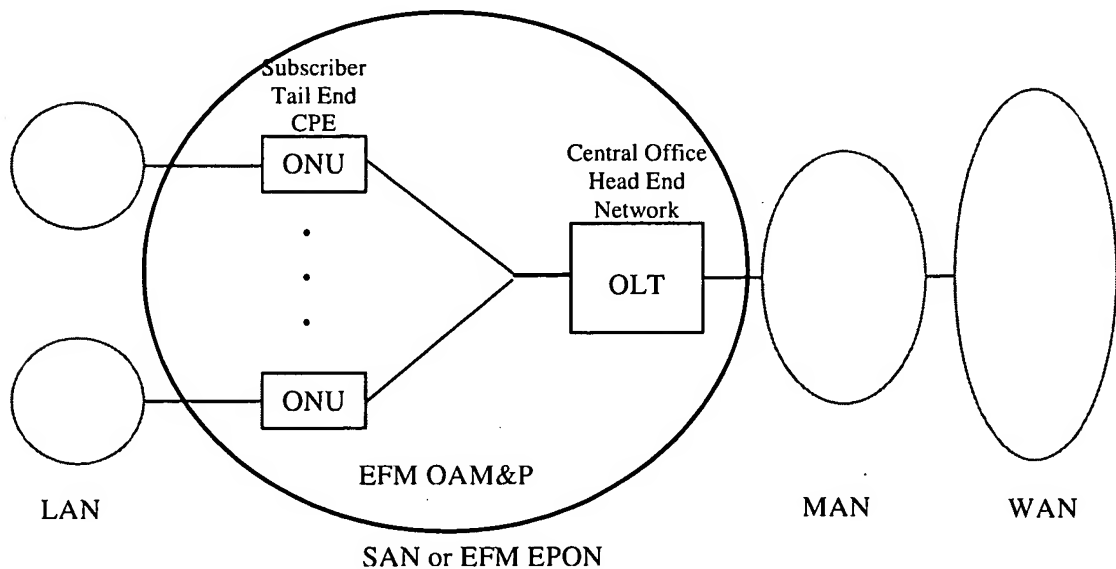
Specifically, Muir et al. combined with Dreyer fails to teach or suggest "a MAC OAMP Control sublayer managing OAMP state and processing OAMP control frames stored on the Ethernet MAC hardware device" (see claim 1, see also claims 81, 82). Furthermore, the combination of Muir et al. and Dreyer fails to teach or suggest "a plurality of MAC sublayers for carrying out MAC operations supporting Ethernet MAC OAMP functionality by processing an

OAMP control frame stored on the Ethernet MAC hardware device” (*see* claim 1, *see also* claims 81, 82).

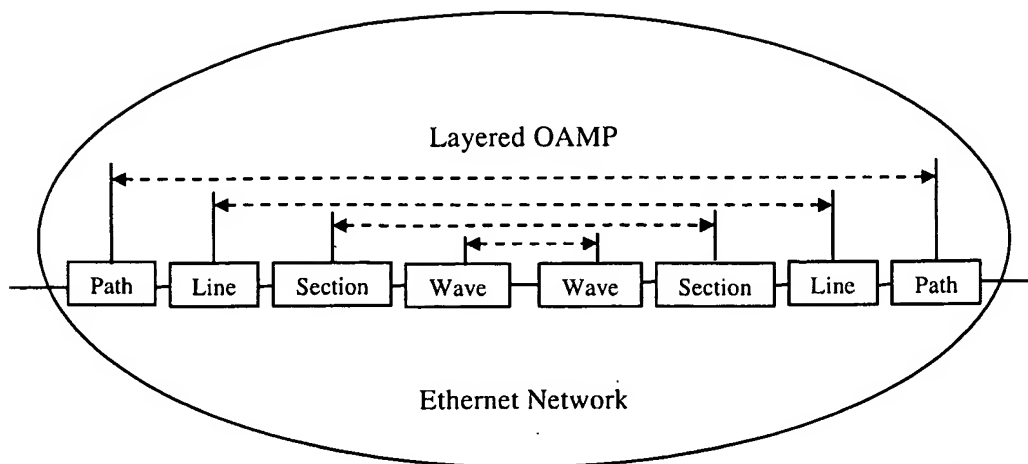
Accordingly, Applicant respectfully submits that the combination of Muir et al. with Dreyer fails to make obvious the present claimed invention.

To further elaborate on the differences between the prior art and the claimed invention, the following additional explanation is provided.

Figure 1 below shows a simplified illustration of context Muir et al. and IEEE 802.3ah EFM or Subscriber Access Network (IEEE 802.3-2005, Section Five, Page 338, Figure 67-1). Figure 2 below shows a simplified illustration of the Ethernet Wave layer, Section layer, Line layer, and Path layer for an Ethernet network (Fig. 3, Page 16, fifth paragraph to Page 18, last paragraph, Page 19, last paragraph, Page 22, second paragraph, and Page 39, last paragraph).



**Figure 1: Muir et al. EFM EPON/SAN OAM&P context**



**Figure 2: Present Invention's Ethernet Layers for Ethernet network**

Figure 1 above shows how Muir et al., and IEEE Standard 802.3ah only apply in the context of the "Ethernet in the First Mile" (EFM) link or Subscriber Area Network (SAN) part of the network. This technology/standard is limited to the physical distribution part of the network that connects the subscriber to the central office. Additionally, the cited references are directed toward Ethernet Passive Optical Network (EPON) technology used for the distribution of signals from the Central Office to the Subscriber.

Figure 2 above shows pictorially how the present invention provides Ethernet OAMP functionality support for Ethernet networks at different network level abstractions (Wave, Physical, Section, Line, and Path layers) of the Ethernet network. Each of these abstraction layers provides demarcation/termination for the corresponding layers and provides support for management and isolation of diagnostics to detect failures at the appropriate layer. In a large network it is important that the network operator be able to quickly detect, isolate where a failure has occurred, and recover from the failure. The layered abstraction of the Ethernet network as disclosed by the present invention enables this functionality.

Furthermore, Muir et al. EFM OAM&P and IEEE Standard 802.3-2005 SAN/EFM EPON OAM has a limited OAM&P functionality (Page 3, second and third item, IEEE Std. 802.3-2005 Section Five, Page 7, Subsection 57.1.1, third paragraph) and teach away from the

full fledged functionality as taught by the present invention (Page 4, second and fifth paragraphs).

Claims 5, 6, 12-16, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al. "OAM&P for EFM" and Dreyer et al (US 6,098,103) as applied to claim 1 above, further in view of Adler (US 7,068,663). Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al "OAM&P for EFM" and Dreyer et al (US 6,098,103) as applied to claim 1 above, further in view of Dawson (US 6,775,804). Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al "OAM&P for EFM" and Dreyer et al (US 6,098,103) as applied to claim 1 above, further in view of Wils et al (US 2004/0022185). Claims 23, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al "OAM&P for EFM" and Dreyer et al (US 6,098,103) as applied to claim 1 above, further in view of Jacobson et al (US 6,381,250). Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muir et al "OAM&P for EFM" and et al (US 6,098,103) as applied to claim 1, further in view of Pinto et al (US 2002/0133622).

Applicant respectfully submits that the combination of Muir et al. with Dreyer fails to teach or suggest every characteristic of Applicant's claims 1, 81, and 82. All remaining dependent claims 2-29 are also allowable based on their dependency on the aforementioned independent claims in addition to their own claimed characteristics. The introduction of Adler, Dawson, Wils, Jacobson, and Pinto fails to cure the deficiencies of the original combination. As such, Applicant submits that all pending claims of the present invention are not obvious with respect to, and are therefore allowable over, the cited documents.

### CONCLUSION

In view of the foregoing, it is respectfully submitted that this application is now in condition for allowance. Applicant courteously solicits allowance of the claims in the form of a Notice of Allowance. Should there be any outstanding issues of patentability following the entry of this response, a telephone interview is respectfully requested to resolve such issues.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. §1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account

Dated: March 23, 2009

Respectfully submitted,

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